

## **Remarks**

Claims 1 and 2 were pending in the application, claim 2 has been canceled, and new claims 14 through 22 have been added in the above amendment.

Claims 1 and 2 were rejected under 35 U.S.C. §§102(e) and 112, second paragraph. The specification was also objected to for not conforming to U.S.P.T.O. standards.

An Information Disclosure Statement is also filed herewith.

## **The Specification**

Applicant submits herewith a marked-up specification and substitute specification. Paragraph numbering and section titles have been included for convenience; references in the description to the claims have been deleted; and minor grammatical errors have been corrected. Also, a typographical error on page 1, paragraph 3 relating to the number of a German patent document has been corrected. No new matter has been added by these changes.

The Abstract has also been amended to address the examiner's comments.

It is believed that the objections on pages 2 and 3 have been traversed.

## **Claim Rejection Under 35 U.S.C. §112**

Claims 1 and 2 were rejected under 35 U.S.C. §112, second paragraph for including the phrase "especially in a motor vehicle," and a term on line 4 of claim 1 that implies a combination of a door system and a vehicle.

Applicants respectfully submit that the above-referenced amendment to claim 1 addresses the phrases at issue, and the claim now satisfies 35 U.S.C. §112, second paragraph. Claim 2 has been canceled.

## **Amendments to the Claims**

Claim 1 has been amended to recite that a sliding door system for a vehicle, wherein the vehicle includes a chassis and a sliding door movable between a closed position and an open position. The sliding door system comprises an energy guide chain having one end connected to the chassis and one end connected to the sliding door. The energy guide chain has between its ends, a curved region that defines a first radius of curvature when the door is closed and a second radius of curvature when the door is open. The first radius of curvature is smaller than the second radius of curvature, which means that the guide chain's radius of curvature is relatively small when the door is closed, and relatively large when the door is open.

The specification explains the benefits of such an arrangement as being useful when space for the energy guide chain is limited. (See for example, paragraphs 6, 8, and 9.) At paragraph 9 it states:

“As a result of the fact that the radius of curvature depends on the position of the sliding door, the energy guide chain can follow the nonlinear movement of the sliding door. In the closed position, the sliding door energy guide chain has a curved region, preferably with the lowest value for the radius of curvature. In this position, the spatial requirement for the energy guide chain is very low. When the sliding door is opened in the longitudinal direction of the vehicle to the maximum state of opening, the energy guide chain follows the opening process in such a way that the radius of curvature is changing. Preferably, this radius of curvature increases, especially the radius of curvature reaches its maximum value in the open position of the sliding door. Through this measure, excessive stress on the energy guide chain is avoided. On the other hand, the energy guide chain

preferably does not come in contact with the components on the surface of the vehicle chassis.”

Paragraph 9 of the substitute specification.

The present invention saves space in new vehicles and also “there is a possibility of equipping already existing vehicles with a sliding door with the sliding door system according to the invention.” (Paragraph 7 of the substitute specification.) Thus, the invention saves space and can be used in new or existing automobiles. This space-saving feature is not found in the prior art, and therefore *DeCicco et al.* does not anticipate amended claim 1 or any of the new claims.

Further, new claims 19, 20, 21, and 22 recite that the energy guide chain has a first section in which the first radius of curvature is formed when the sliding door is in the closed position and the second section in which the second radius of curvature is formed when the sliding door is in the open position. Claim 20 further recites that the energy guide chain first section is closer to the sliding door than the energy guide chain second section. Claim 21 recites that the degree of curvature in each of the sections is limited. Claim 22 recites an energy guide chain having two sections, each of which defines a different radius of curvature. Nothing in *DeCicco et al.* discloses such features, and thus *DeCicco et al.* does not anticipate claims 19, 20, 21, or 22.

As stated above, new claims 14 through 22 have been added, and support for each new claim can be found in the substitute specification as indicated in the following chart:

Claim	Substitute Specification
14	Figs. 1 to 3
15	Figs. 1 to 3
16	Paragraph 11

Claim	Substitute Specification
17	Paragraph 11
18	Paragraphs 11 and 33
19	Paragraphs 12 to 15, 30 to 34
20	Paragraphs 12 to 15, 30 to 34
21	Paragraphs 14, 15, and 34
22	Paragraphs 12 to 15, 30 to 34

### Rejections Under 35 U.S.C. §102

The examiner has rejected the claims as being anticipated by *DeCicco et al.* (U.S. Patent 6,781,058) (“the ‘058 patent”).

To maintain a rejection under 35 U.S.C. §102(b), all of the elements of each claim must be disclosed in a single reference. The test for anticipation requires a strict, not substantial, identity of corresponding claim elements. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334-35, 2008 U.S. Appl. LEXIS 8404, 27-28 (Fed. Cir. 2008).

It is first noted that the chain of the ‘058 patent lacks the space conserving features of the present invention because the radius of curvature in the open position is relatively small and the radius of curvature actually *increases* as the door closes. This inefficient design requires more space for the cable carrier chain and can prevent its use in retrofit situations.

The energy guide chain as recited in amended claim 1, and in the new claims, on the other hand, is designed to consume as little space as possible when the sliding door is in the closed position. To accomplish this objective, the energy guide chain’s radius of curvature must be relatively small when the sliding door is in the closed position, but can increase as the sliding

door moves toward the open position. This is the exact opposite of the '058 patent's disclosure even assuming the '058 patent discloses an enabling embodiment. This key distinction is made throughout the disclosure of the present application such as in paragraphs 9, 10, 11, and 32, and is illustrated in the figures.

Further, the '058 patent does not disclose a chain that can be retrofitted into a vehicle or a carrier chain intended to save space because, for example, the chain spans the doorway of the vehicle when the door is opened. Only a chassis designed to accommodate such an arrangement could protect a carrier chain that spans the open doorway of the vehicle. This is an ill-advised design that consumes unnecessary space and exposes the energy guide chain to damage.

Also, the chain of *DeCicco et al.* includes no first or second sections in which the first and second radii of curvature are formed. The *DeCicco et al.* guide chain is not articulated as is the claimed energy guide chain of the present invention. Claims 19, 20, and 21 recite these sections, claim 20 recites where the sections are located relative to the chassis and sliding door, and claim 21 recites that the energy guide in the first and second sections limits the radii of curvature to no smaller than the recited first and second radii of curvature, respectively.

Applicant also notes that the '058 patent's cable carrier takes the form of an E-chain E2 micro (part number 045-10-018-0) from Igus. ('058 patent, col. 4, lines 38 to 42.) Attached is a data sheet of this chain, which shows that the chain has a constant bending radius of 18mm. The part number indicates this bending radius (018). The data sheet refers at the right hand to three bending radii, but these bending radii are for different chains. Thus, this E-chain fails to anticipate claims 19 to 22, and especially claim 21.

Figs. 6a, 6b and 6c show a cable carrier of the '058 patent, and reference number 200a refers to the movable end of the cable carrier. The roller 74 moves along the lower rack 40. Fig.

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Application No.: 10/571,880

6a shows a sliding door 60 in an open position. In the open position the cable carrier is extended. The roller 74 follows the track 40. The track is parallel to the carrier chance so that during the movement the bending radius should be constant.

Applicant submits that it is not possible for the cable carrier to move from Fig. 6a to the Fig. 6b, as illustrated, during the movement of the sliding door, and thus the '058 patent's disclosure is non-enabling. As depicted, the curved end of the carrier does not change its radius, but the door is closed as shown in Fig. 6c, so it is not possible to arrive at the Fig. 6b position during the movement of the door. (Fig. 6b shows that the movable portion is not parallel to the portion 200c.) Also, during an opening procedure, the roller 74 moves down, as viewed, along the curved track toward the unmovable portion 200c.

Thus, *DeCicco et al.* fails to anticipate amended claim 1 or any of the new claims because there is no strict identity between its disclosure and the elements of any of the claims.

### **Conclusion**

Applicant respectfully submits that the present application complies with all U.S. patent standards and is allowable over the art of record. Applicant respectfully requests that this case be passed to issue.

Respectfully submitted,

  
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## Series 045



Here you can configure your E-ChainSystem® individually. All entries and changes are taking over to the part list which is situated at the end of the page.

### Series 045 E2 'micro'

1. Smallest divisions for very smooth operation (77 links/m)

Inner widths Bi: 6 up to 64 mm  
Bending radii R: 18, 28, 38 mm  
Pitch: 13 mm per link = 77 links/m

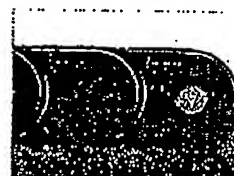
Price index: ○○○○  
Opening mechanism: □

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Application examples  
3D-CAD  
Samples, catalog and  
CD-ROM order  
E-Chain® comparison  
E-Chain® product finder  
PDF file  
Ask the product expert

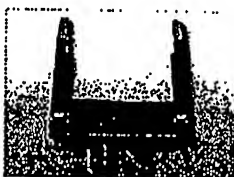
Designing with igus®



Smallest pitch, 13mm



6 widths, 3 bending radii



Mounting bracket with dowel, available as a variant



Quicksnap: The complete

### ⊕ When to use Series 045

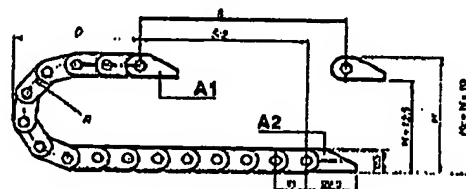
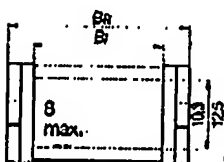
Very smooth running required  
Good design  
Excellent service life  
Low price

### ⊖ When not to use Series 045

When light packaging with plugs is required  
Series 07 "Zipper"  
If filling should be possible without the need for  
opening lids  
Series E06 "Easy Chain®"  
When torsional rigidity is of great importance  
Series 08 E2 "micro"

## Installation dimensions

Part No.:	045.10.018.0 more about part
Inner width Bi [mm]:	10
Bending radius R [mm]:	18
Travel distance S [mm]:	1000
Chain length** [mm]:	611
Number of chain links:	47
External width Ba [mm]:	16
H* [mm]:	52
D [mm]:	45
K [mm]:	100
Hi [mm]:	10,3
Ha [mm]:	12,5
Weight per link [g]:	2
Weight [kg/m]:	0.1



A1=Moving End, A2=Fixed End  
Pitch: 13 mm per link  
Links per m: 77  
Travel: S  
Chain length = S/2 + K

\* The required installation clearance is

HF = H + 10 mm (in the case of 0,2 kg/m additional load)

If extremely restricted space is available, please consult us.

\*\* The calculated chain length relates to self-supporting applications with central feed. The calculated length corresponds to the chain length without mounting brackets.

### Unsupported length

### Dependency of the unsupported length on the additional load

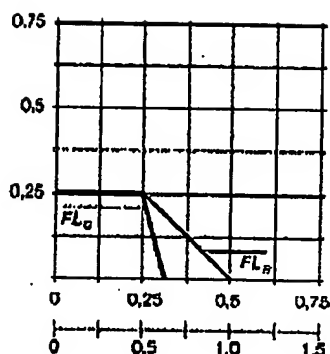
X axis: Unsupported length in m FLB/FLG

Y axis: Additional load in kg/m

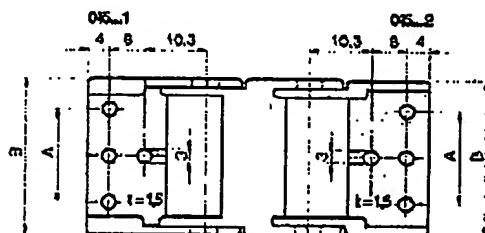
Lower scale: Length of travel  $S$  in m

FLB = unsupported with permissible sag

FLG = unsupported with straight upper run



## Mounting brackets



- ⊕ Single-piece mounting bracket – firm fit
- ⊕ Corrosion-resistant
- ⊕ Can be pre-customised

**0450.06.12 - 0450.20.12: only medium bores**

0450.30.12 - 0450.64.12: only external bores

### Mounting bracket, full set

Part No. : 0450.10.12

A [mm]:

**B [mm]:** 16

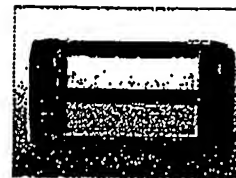
## Part List

	Position	Number	Part No.	Description		
<input checked="" type="checkbox"/>	1	1	045.10.018.0	Energy chain® Series 045	Length 811 mm	Notes
<input checked="" type="checkbox"/>	2	1	0450.10.12	Mounting bracket, full set		Notes

**1** **Pc.**  **Into shopping basket**

[Switch to shopping basket](#)

unit can be detached  
manually



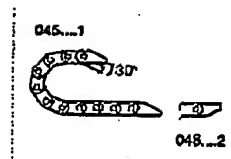
Series 046 with sub-divisions

### Assembly instructions

### Other installation types

### Technical specifications

### Strain reliefs



### Personal contact



The terms "igus", "Chainflex", "Easy Chain", "E-Chain", "E-Chain System", "E-Ketten", "E-KettenSysteme", "Energy Chain", "Energy Chain Systems", "Fizz", "Invis", "manus", "ReadyChain", "ReadyCable", "Triflex", "TwisterChain", "DryLin", "Iglidur", "igubal", "plastics for longer life", "xtos", "xtrodur" and "vector" are legally protected trademarks in the Federal Republic of Germany and, where applicable, in some foreign countries.